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TO THE READER.

In order to enable future volumes of the CANADIAN ENTOMOLOGIST to date their commencement from a less awkward time than the middle of a year, as well as for other reasons that it is needless to specify, we have resolved upon spreading the publication of the current volume over the remainder of this year and the whole of the following one; we shall thus issue a number about every six weeks instead of monthly, and begin volume three in January, 1871. The following will be the dates of issue of the remaining numbers of this volume, so far as they can be decided upon beforehand :—No. 3, on November 15, 1869; No. 4, on January 1, 1870; No. 5, February 15; No. 6, April 1; No. 7, May 16; No. 8, July 1; No. 9, August 15; No. 10, October 1; No. 11, November 1; No. 12, December 1. In accordance with this arrangement, we have delayed the issue of the present number, as will have been observed, from September 15 to October 1. Contributions for publication should be in the hands of the Editor about ten days before the date of issue of a number, in order to secure insertion in it.

ON A SPECIES OF HEMITELES (Ichneumonidæ),

Ascertained by the Editor to be parasitic in Canada on the imported Currant Worm Fly (Nematus ventricosus, Klug.).

BY BENJ. D. WALSH, M.A.

Not a single American species of *Hemiteles*, so far as I am aware, has as yet been described under that generic name as occurring north of the West India Islands. Two of Say's *Cryptus*, indeed, namely *Cr. orbus*, found in Indiana, and *Cr. tenellus*, found in Pennsylvania, manifestly belong to this genus; and the latter may not improbably be identical with our insect, though his description is insufficient to identify it, and scarcely separates it from *Hemiteles thoracicus*, Cresson, an inhabitant of Cuba. In my own cabinet, besides the species that we now have to do with, I have no less than nine undescribed species of this genus that were captured or bred in Illinois. The genus may be conveniently divided into two principal groups, according to the presence or absence of metathoracic thorns; and of my undescribed species but two belong to the latter category. In fact it would seem from the following table, that a thorned metathorax is rather a S. A. than a N. A. character.

GENUS HEMITELES.

GROUP A.: — Two thorns more or less distinct, one on each side of the metathorax, and directed backwards and outwards. H. tricolor, Brullé, Brazil. H. fasciipennis, Br., Brazil. H. xanthogaster, Br., Brazil. H. ruftventris, Br., S. Am. H. striatus, Br., Columbia. H. lepidus, Br., Brazil. H. pulchellus, Br., Brazil. H. fuscipennis, Br., Hayti. H. incertus, Cresson, Cuba, and two undescribed species from Illinois, U.S. In all 7 S. A., 4 N. A. sp.

GROUP B. :- Metathorax unarmed. In all 13 N. A. sp., and none at all from S. A.

a. Wings not banded with fuscous. H. amanus, Cress., Cuba. H. bicinctus, Cress., Cuba. H. subflavescens, Cress., Cuba. H. [Cryptus] orbus, Say., and six undescribed species from Illinois, U. S.*

b. Wings with one fuscous band. One undescribed species from Illinois, U.S.

c. Wings with two fuscous bands. H. [Cryptus] tenellus, Say., Penna., U. S. II. thoracicus, Cresson, Cuba. H. nemativorus, n. sp.

Through the kindness of the Editor, my cabinet has been enriched by a fine Q specimen of H. nemativorus, of which I had previously possessed but three o, captured at large in Illinois. His account of its larval and pupal history is as follows: "On June 29th I observed to my surprise a Saw-fly cocoon (Nematus ventricosus, Klug.) attached to a leaf high up on a gooseberry bush, instead of on or under the surface of the ground as usual. Thinking that the unwonted situation might be the effect of a parasitic attack upon the larva, I brought the specimen in, and a few days afterwards found that there had emerged from it the Hymenopteron that I now send you!" Now, as I know that this very same species of Hemiteles occurs near Rock Island, in Illinois, where as yet Nematus ventricosus has not been introduced. it follows that it could not have been imported from Europe along with this pestilent Saw-fly, but must be in all probability an indigenous species. Hence we may draw the further conclusion, that a native American parasite can and sometimes does acquire the habit of preying upon a vegetable-feeding insect imported among us from Europe. The same conclusion, indeed, follows

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^{*} In 18:0 and 1861, as I have stated in a paper on the Injurious Insects of Illinois (Trans. Ill. St. Agr. Soc. IV., p. 369), I bred from 50 to 70 \Im Q individuals of an undescribed *Pezomachus (P. Heteropterus*, Walsh, MS.), a genus which is normally aptersqs and has an aborted thorax like that of a worker ant. Out of this large number there were produced four males, which had the complete wings of a *Hemiteles*, and all the other characters of that genus, including of course the fully-developed thorax. Hence I infer that a *Pezomachus* is nothing but a degraded *Hemiteles*. I may add that this species—as well as two other *Pezomachus* in my collection, including *P. minimus*, Walsh—had no metathoracic thorns, and that the winged \Im \Im , belonged to B. a of this table.

from a fact which I published in 1866 (*Pract. Entom.* I. p. 120), namely, that this very same Imported Saw-fly is preyed upon by another indigenous Ichneumon-fly, the *Brachypterus* [*Cryptus*] micropterus of Say, which was described in 1836, or twenty years before the Saw-fly, which it now infests, had crossed the Atlantic. But on a question such as this, which is not only of great scientific interest, but of high practical importance, it is as well to make assurance doubly sure.

It may be remarked here that—as we shall have occasion to state also in a forthcoming illustrated Paper on "Currant and Gooseberry Worms" in the *American Entomologist*—we have recently heard from Mr. Wm. Saunders, of London, Ontario, that *Nematus ventricosus* very commonly with him spins up above ground on the bushes, as in the case referred to above. This fact is of especial interest, because it has not hitherto been observed in the States, and because European authors noticed it long ago as the habit of this same species on the other side of the Atlantic. Indeed Dahlbom was absurd enough to manufacture two species out of this one—although as he says himself the perfect insects are as like each other as one egg is like another egg basing his specific distinction solely upon this slight difference in the habits of his two so-called species. To be consistent, he ought to have ground out a third species from those individuals that spin up, not under the earth, but on the surface of the earth. (See on this subject *Pract. Entom.* I. p. 125.)

HEMITELES NEMATIVORUS, n. sp.— Q Rufous and almost microscopically punctate and subopaque. Head with the ocelli, and sometimes the space enclosed by them, black. Antennæ with joints 3 and 4 equal in length, and each four times as long as wide, joint 5 a trifle shorter than 4, joint 6 and the following gradually shorter and shorter; brown-black, their basal $\frac{1}{2}$ or $\frac{2}{3}$ rufous beneath with the incisures brown-black. Thorax with the parapsidal grooves obsolete, and the normal metathoracic carinæ strongly and fully developed. The suture at the base of the scutel, a narrow vitta on each side of the mesonotum abbreviated more or less in front or sometimes entirely absent, the extreme tip of the methathorax and more or less of its basal part, or sometimes the entire metathorax except a lateral rufous spot at tip, all brown-black. Abdomen with joint 1 two and a half times as long as wide, and fully twice as wide at tip as at base; joints 2-8 forming a depressed oval mass $2\frac{1}{4}$ or $2\frac{1}{2}$ times as long as wide and expanding in its middle to nearly twice the extreme width of joint 1. Joint 1, 2, and usually the base of 3, rufous, joint 1 sometimes clouded with brown-black. Sheaths of the oripositor brown-black, projecting from the tip of the abdomen by nearly half its length. Legs dull rufous. The 4 front legs, with the femora superiorly and the tibiæ exteriorly, and the entire tarsi, all brown—black, the dark color most extensive in the Canada Q. Hind legs with the tip, and in the Canada Q the whole, of the femur, the entire tibiæ except their basal, $\frac{1}{3}$ white, is whitish, and also the entire tarsi, all-brown black. All the coxæ and trochanters sometimes, especially in Canada Q, a little varied with brown-black, more so (as is usual in *Ichneumonidæ*) in each successive pair of legs. Wings hyaline; veins black; stigma twice as long as wide, triangular, black, its basal $\frac{1}{4}$ or $\frac{1}{3}$ white. A fuscous band straddling the basal cross-veins of the front wing, and a much wid band extending across the wing from the base of the stigma to the tip of the marginal cell, but always leaving a more or less extensive hyaline spot at the tip of the stigma. Length \mathcal{Q} (exclusive of oripositor) 0.12-0.19 inch, the Canada \mathcal{Q} and one Illinois \mathcal{Q} attaining the largest dimensions. Two \mathcal{Q} from Illinois, one \mathcal{Q} from Canada; \mathcal{L} unknown.

Variety fuscatus. $- \Im$ Differs in being smaller and in being still darker even than the Canada \Im , and may possibly, but I think not, be distinct. The black spot inclosing the ocelli extends on to the upper posterior orbits; the entire upper surface of the thorax, including the scutel, is brown-black, except a narrow rufous vitta on each side of the mesothorax; and, as in the Canada \Im , the entire abdomen, except joint 2, is brown-black. Legs as in the Canada \Im . Wings normal. Length \Im 0.10 inch. One \Im from Illinois; \Im unknown.

The ground-color of *tenellus*, Say, is said to be "honey-yellow," not rufous as in *nemativorus*; he says nothing of the conspicuous basal white spot on the stigma; and he describes the abdomen as "honey-yellow, blackish at tip," whereas in my palest specimen by far the largest part of the abdomen is darkcolored. About the legs he says not a single word; whence, as he gives "honey-yellow" as the general color, it is to be inferred that they were honey-yellow immaculate. Neither does he tell us whether he described from one specimen or from fifty; so that we are left entirely in the dark as to how far the few characters which he gives may be considered as reliable specific characters, and how far as mere individual variations. On the whole, we must consider the question whether *Cryptus tenellus*, Say, be identical with *Hemiteles nemativorus*, Walsh, as one of those unimportant scientific enigmas which—as Say's entire collection has perished—can never now be solved with any degree of certainty, and about which it is therefore useless to bother our brains any further.

This species comes very near to *H. thoracicus*, Cresson, from Cuba, described from a single Q, but may be distinguished as follows: 1st. The ground-color is rufous, not "clay-yellow." 2nd. The dorsal lines of the thorax, or parapsidal grooves, are entirely obsolete, not "deeply impressed." 3rd. The pleura is never "brown." 4th. The basal dark band of the front wing straddles the basal cross-veins, instead of being "at the base of the first sub-marginal cell." 5th. The abdomen always has joint 2 rufous and is never "brown with the apical margins of the segments somewhat pale."—I may remark here that in *Pimpla* [*Cryptus*] conquisitor, Say (=*Cr. plurivinctus*, Say), and especially in *Pimpla annulipes*, Brulle; the size of the largest Q is double that of the smallest Q, as I know from examining some 50 or 60 specimens of each species. So that the discrepancy in size between the largest *H. nemativorus* Q (0·19 inch), and what I take to be a variety of this Q (*fuscus* Q, 0·10 inch), is by no means unparalleled in this Family.